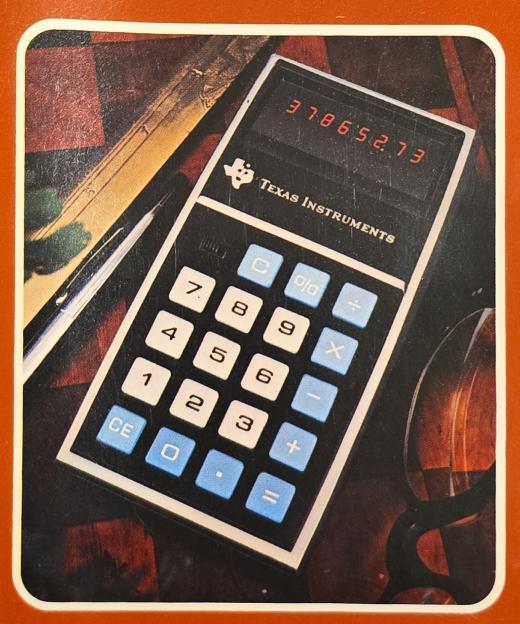
# Texas Instruments electronic calculator TI-1500





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NOTE: Read battery considerations on pages 1 and 4 carefully before operating your calculator.

## **Toll-Free Telephone Assistance**

For assistance with your TI-1500 calculator, call one of the following toll-free numbers if necessary:

800-527-4980 (within all continental states except Texas) 800-492-4298 (within Texas

See page 17 and back cover for further information on service.

#### INTRODUCTION

The TI-1500 Calculator from Texas Instruments features five function (add, subtract, multiply, divide, percent) operation and automatic constant for multiplication, division, addition and subtraction. With the percent key, problems such as taxes, discounts, and percentage calculations are easily solved.

Designed with state-of-the-art MOS/LSI integrated circuits and constructed with quality components, the TI-1500 should provide years of reliable service.

#### **Features**

Percent Key — % key permits easy calculation of percentages, taxes, discounts, and other similar problems.

Automatic Constant — Addition, subtraction, multiplication, or division with a constant number is automatic. Does not affect normal chain or mixed calculations.

Easy to Operate – Press the keys in the same order as the problem is written.

Fully Portable — Weighs less than 8 ounces, fits neatly in pocket, briefcase or purse.

Repeat Add and Subtract — Repeated depression of the + or - key permits multiple additions or subtractions of the last number entered.

Reliability — Solid state components, integrated circuits, and a light emitting diode display provide reliable operation.

Rechargeable Batteries — 2 "AA" nickel-cadmium rechargeable batteries provide 4-6 hours of portable power when fully charged. Batteries can be fully recharged overnight (10 hours) with the power switch in the OFF position using the AC 9140 Adapter/Charger included with your calculator.

AC Operation — After charging with switch off for one minute the calculator can be used while the batteries are charging.

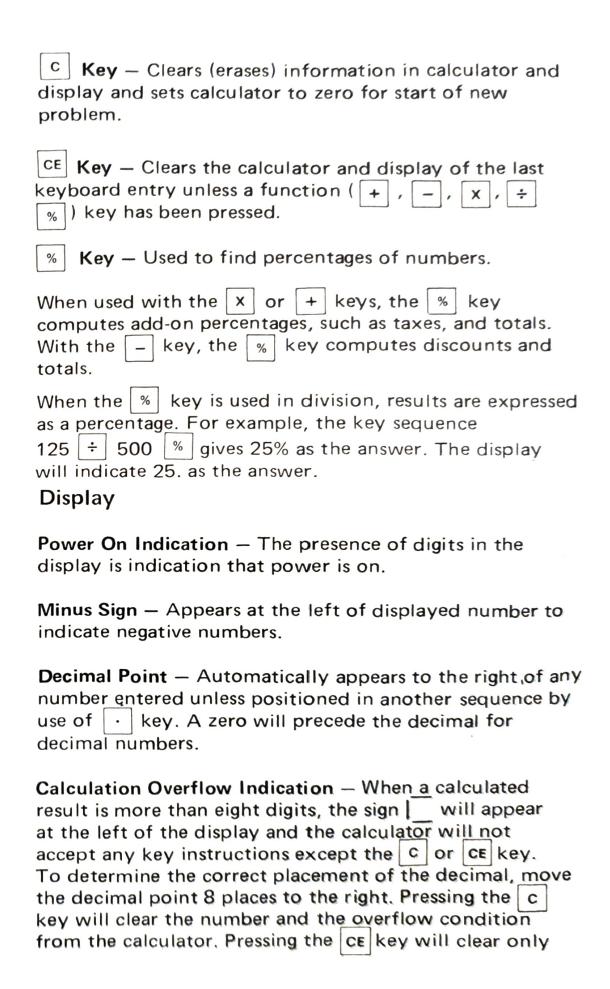
#### OPERATING INSTRUCTIONS

#### **Switches**

calculation result.

On Switch — Located on top left side of the keyboard. Turns calculator on and off.

## **Keys** 9 **Keys** – Enters numbers (limit 8 digits). Key - Enters a decimal point (only the first decimal entry is observed). **Key** — Instructs the calculator to add the previous number or result to the following number. Repeated depressions continue to add the last number entered to the result. Key — Instructs the calculator to subtract the following number from the previous number or result. Assigns a negative sign to the following number when x or + key. Repeated depressions used after a continue to subtract the last number entered from the result. X Key - Instructs the calculator to multiply the previous number or result by the following number. \* Key - Instructs the calculator to divide the previous number or result by the following number. = Key - Instructs the calculator to complete the previously entered operations to provide the desired



the overflow condition. The displayed number will remain for further calculation and the decimal position will remain shifted.

Decimal Alignment — In addition or subtraction problems the TI-1500 will display in a result as many decimal places as are contained in the entry with the most decimal places. For example, the result of the problem 1.273 — .203 is displayed as 1.070, instead of 1.07. This decimal alignment is maintained until the c key is used to reset the decimal to the far right position or another problem with more decimal places is entered.

### **Battery Considerations**

Calculator Operation — Before portable use, the batteries should be given a full charge of 10 hours with the switch in the OFF position. If during portable operation the display appears dim, calculations may be continued using the AC 9140 Adapter/Charger. Connect the Adapter/Charger to the calculator and charge for at least 1 minute with the power switch in the OFF position. Then turn calculator on and continue calculations with the Adapter/Charger connected to the calculator.

Low Battery Indication — When the batteries are low the display will appear dim. Recharge the batteries when this occurs. Rechargeable batteries will lose their charge when not used and after two or three months will require recharge before extended portable use.

Periodic Recharging — For maximum rechargeable battery life, it is recommended that you operate the calculator as a portable and recharge the nickel cadmium batteries periodically. Although the calculator will operate indefinitely attached to the AC Adapter/Charger, the nickel cadmium batteries can lose their storage capability if they are not allowed to discharge occasionally.

WARNING: Avoid leaving the calculator on for several hours after the display appears dim. This will result in fully discharged batteries and may damage their ability to be recharged. This condition requires that the batteries be charged for an extended period of time (see page 18, paragraph 3).

#### **OPERATING EXAMPLES**

The following examples show how to operate the TI-1500 and should be followed to become familiar with how the calculator works.

Before turning the calculator on, charge the batteries for one minute. The calculator can be used while the batteries are charging, but it is recommended that the batteries be charged for 10 hours before portable operation.

Place ON-OFF switch in the ON position, press the c key, and a 0. should appear in the display.

#### Addition and Subtraction

Example: 4.23 + 4 = 8.23

Enter	Press	Display
4.23	+	4.23
4	=	8.23

Example: 6 - 1.854 = 4.146

Enter	Press	Display	
6	_	6.	
1.854	=	4.146	

Example: 12.324 - 7 + 1.6 = 6.924

Enter	Press	Display
12.324	_	12.324
7	+	5.324
1.6	=	6.924

## Repeat Addition and Subtraction

Example: 2 + 3 + 3 + 3 = 11

Enter

Press

Display

2

3

+ +

2.

5.

8.

11.

Example: 21 - 4 - 4 - 4 - 4 = 5

Enter

21

4

Press

-

Display

21.

17.

13.

9.

5.

## Multiplication and Division

Example:  $27.2 \times 18 = 489.6$ 

Enter

27.2

18

**Press** 

X

Display

27.2

489.6

Example:  $12 \div 5.2 = 2.3076923$ 

Enter

12

5.2

**Press** 

÷

=

Display

12.

2.3076923

Example:  $(4 \times 7.3) \div 2 = 14.6$ 

Enter	Press	Display
4	×	4.
7.3	÷	29.2
2	=	14.6

## Using the CE Key

When an incorrect number is entered in a calculation, the clear entry key is used to clear the display so the correct number can be entered and the calculation continued.

Example: 5 + 3 = 8

Enter	Press	Display	Remarks
5	+	5.	
4		4.	4 pressed incorrectly
	CE	0.	Clear entry
3	=	8.	Enter correct number and complete calculation

When a calculation overflow results, calculations may be continued by pressing the <code>CE</code> key. The decimal point in the final displayed result must be shifted mentally 8 places to the right to obtain the correct answer.

>

Enter	Press	Display	Remarks
85000000 25150000	+     X	85000000. <b>∠</b> 1.1015000	Correct decimal position is 8
			places to the right
	CE	1.1015000	Clear overflow condition
12.5	=	13.76875	Mentally shift the decimal point eight places to the right for correct answer

## Using the Automatic Constant

The constant feature of the TI-1500 allows multiplication or division of a series of numbers by one number and addition or subtraction of a constant number to or from a series of numbers.

A number entered before the X key in multiplication, after the ÷ key in division, after the + key in addition, and after the - key in subtraction becomes the constant.

## Multiplication and Division by a Constant

Example:  $4 \times 5 = 20$ ,  $4 \times 6 = 24$ ,  $4 \times 7 = 28$ 

Enter	Press	Display
4	x	4.
5	=	20.
6	=	24.
	=	28.

Example:  $12 \div 2 = 6$ ,  $20 \div 2 = 10$ ,  $44 \div 2 = 22$ 

Enter	Press	Display
12	÷	12.
2	=	6.
20	=	10.
44	=	22.

### Addition and Subtraction of a Constant

Example: 3 + 5 = 8, 9 + 5 = 14, 91 + 5 = 96

Press	Display
С	
+	3.
=	8.
=	14.
=	96.
	c + = =

Example: 8 - 6 = 2, 25 - 6 = 19, 3 - 6 = -3

Enter	Press	Display
8	_	8.
6	=	2.
25	=	19.
3	=	-3.

## Calculations With Positive and Negative Numbers

When performing multiplication or division, a negative value is assigned to a number by pressing the \_\_ key before entering the number.

Example: 
$$\left(\frac{-125}{5} + 3\right) \times (-4) = 88$$

Enter	Press	Display
	c -	
125	÷	<b>-125</b> .
5	+	<b>-25</b> .
3	x -	-0.
4	=	88.

NOTE: When the first number of a calculation is a negative number, the previous problem must be cleared manually by pressing the c key (the – is a function key and will not automatically clear the calculator).

## **Performing Mixed Calculations**

The TI-1500 can do mixed calculations — combinations of add +, subtract —, multiply x, and divide ÷ very easily. Just press the keys in the same order as the problem is written.

Example:  $12 \times 13 \div 14 + 15 - 16 = 10.142857$ 

Enter	Press	Display
12	×	12.
13	÷	156.
14	+	11.142857
15	_	26.142857
16	=	10.142857

### Using the Percent Key

It's easy to find percentages with the TI-1500 percent key. The following examples show how.

Example: 6% of \$1,250.00

Enter	Press	Display
1250	x	1250.
6	%	75.

Example: \$65.00 plus 5% tax

Enter	Press	Display	Remarks
65	+	65.	
5	%	3.25	Amount of tax
	=	68.25	Total

Example: \$85.00 less 8% discount

Enter	Press	Display	Remarks
85	-	85.	
8	%	-6.8	Amt. of discount
	=	78.2	Total

Example: \$125.00 less 10% discount plus 4% tax

Enter	Press	Display	Remarks
125	_	125.	
10	%	-12.5	Amt. of discount
	= +	112.5	Discounted price
4	%	4.5	Amount of tax
	=	117.0	Total

#### SAMPLE PROBLEMS

### Finding the Best Price

A 4 lb. box of laundry detergent sells for \$1.76, while a 2 1/2 lb. box sells for \$1.20. Which is the better buy?

The price per pound for the 4 lb. box =  $\frac{$1.76}{4}$  = \$.44

Enter	Press	Display
1.76	÷	1.76
4	=	0.44

The price per pound for the 2 1/2 lb. box =  $\frac{\$1.20}{2.5}$  = \$.48

Enter	Press	Display
1.2	÷	1.2
2.5	=	0.48

The 4 lb. box is cheaper by 4 cents a pound.

The important thing to remember is to find the price per unit of measure and to compare these prices. For example, if the smaller box contains 2 lbs., 10 oz. instead of 2 1/2 lbs., you must figure the price per ounce and compare these prices on a per ounce basis. The larger box contains 4 lbs. and there are 16 ounces to a pound so the larger box contains 4 X 16 = 64 ounces. Similarly, the smaller box contains 2 X 16 = 32 ounces plus 10 ounces = 42 ounces.

The price per ounce for the larger box is then

$$\frac{$1.76}{64}$$
 = \$0.0275 or 2.75 cents per ounce

Enter	Press	Display
1.76	÷	1.76
64	=	0.0275

The price per ounce for the smaller box is

$$\frac{\$1.20}{42}$$
 = \\$0.0285714 or 2.857 cents per ounce

Enter	Press	Display
1.2	÷	1.2
42	=	0.0285714

The larger box is 2.857 - 2.75 = 0.107 cents per ounce cheaper.

## How Much Paint to Buy

buy 2 gallons.

To figure out how much paint to buy you need to know how much area is to be covered and how much area each gallon of paint will cover.

For example, a 10 by 12 foot room with 8' ceiling has 8' X 10' = 80 square feet on each of two walls and 8' X 12' = 96 square feet on each of two walls, so the total area on the walls is 80 + 80 + 96 + 96 = 352 square feet. There is 10' X 12' = 120 square feet on the ceiling, so the total square feet to be covered is 352 + 120 = 472 square feet. If one gallon of paint covers 250 square feet, then you need  $\frac{472}{250} = 1.888$  gallons, and you will have to

## **Balancing the Checking Account**

The bank statement says your beginning balance was \$58.63 and your final balance was \$17.33. One check for \$8.28 is still out and one deposit for \$55.00 is not shown on the statement. What should your checkbook balance be?

Enter	Press	Display	Remarks
17.33	+	17.33	Enter final balance
55	_	72.33	Add deposit not shown and subtract check not cleared
8.28	=	64.05	Answer should agree with checkbook

## Figuring Miles Per Gallon

Figuring miles per gallon is easy with the TI-1500. When filling up with gas, write down the mileage. The next time you need gas, fill the car up again and write down the mileage and the amount of gasoline.

For example, if the mileage on the car is 22,532 the first fillup and is 22,689 the second fillup, and 11.2 gallons of gas are put in, the miles per gallon are figured as follows:

Enter	Press	Display	Remarks
	С		
22689	_	22689.	Enter 2nd fillup mileage
22532	÷	157.	Subtract 1st fillup mileage.
11.2	_ =	14.017857	Divide by gallons to find miles per gallon

## Squaring a Number

The square of a number (multiplying a number by itself) can be found by pressing the  $\begin{bmatrix} - \end{bmatrix}$  key after the  $\begin{bmatrix} x \end{bmatrix}$  key.

Example:  $25^2 = 625$ 

Enter Press Display

25 x = 625.

## **Finding Reciprocals**

The reciprocal of a number (the result of dividing the number into one) is easily found.

Example:  $\frac{1}{5+3} = 0.125$ 

Enter Press Display

c
5
+ 5.
3
÷ 8.
= 1.
0.125

Example: 1/16 = 0.0625

Enter Press Display

16  $\div$  = = 0.0625

### Square Roots

The TI-1500 can be used to find the square root of a given number (that is, the number which multiplied by itself equals the given number). The square root is calculated using a repetitive process.

$$\sqrt{N} = 1/2 \left( \frac{N}{A_1} + A_1 \right) \approx A_2 \approx 1/2 \left( \frac{N}{A_2} + A_2 \right) = A_3$$

where  $A_1$  is an initial approximation,  $A_2$  is the calculated second approximation, and  $A_3$  is the answer.

Example:  $\sqrt{26} = 5.099$ 

Choose 5 as an initial approximation since  $\sqrt{25} = 5$ .

Enter	Press	Displ <b>ay</b>	Remarks
26	÷	26.	
5	+	5.2	
5	÷	10.2	
2	=	5.1	2nd Approx.
26	÷	26.	
5.1	+	5.098 <b>0</b> 392	
5.1	÷	10.198039	Re-enter 2nd Approximation
2	=	5.099 <b>0</b> 195	Answer
	x =	25.999999	Square Answer to Check

#### In Case of Difficulty

- 1. Check to be sure the power switch is in the ON position. If no digits appear in the display, press the ckey. If a number is displayed, but key entries or ckey do not affect the display, switch the calculator OFF and then ON.
- 2. If no display appears or if the display appears dim, place the calculator on charge, making sure the charger is plugged into a working AC outlet. Before operating your calculator while charging, switch the calculator to OFF and charge for 1 minute. For maximum portable use, allow the calculator to charge fully (10 hours in OFF position) before using without the Adapter/Charger.
- 3. If the calculator has been left on for several hours after Low Battery Indication (Example: accidently left on overnight), charge the calculator with the power switch in the OFF position for 16 hours before portable use. Or, the calculator may be used with the AC 9140 Adapter/Charger after allowing the batteries to charge with the power switch OFF for 1 hour.
- Review the operating instructions to be certain calculations have been performed in the manner described in this book. Improper key sequences may result in incorrect calculations.

If none of the above steps corrects the difficulty, RETURN THE CALCULATOR AND THE CHARGER postpaid for repair to the Texas Instruments Consumer Service Facility. Please include a description of the difficulty you have observed as well as return information of name, address, city, state and zip code

#### If You Have Questions or Need Assistance

If you have questions or need assistance with your calculator, write the Consumer Relations Department at:

Texas Instruments Incorporated P.O. Box 22283 Dallas, Texas 75222

or call Consumer Relations at 800-527-4980 (toll-free within all continental states except Texas) or 800-492-4298 (toll-free within Texas). If outside continental United States call 214-238-5461. (We regret that we cannot accept collect calls at this number.)

# Warranty Registration Owner's Copy

To protect your warranty, complete and mail the attached Warranty Registration Card within 10 days of purchase or receipt as a gift. Also record the serial number of your calculator below. Any correspondence concerning your calculator must include both model and serial number.

TI-1500		
Model No.	Serial No.	Purchase Date

### **IMPORTANT**

THE WARRANTY IS VOID IF THE SERIAL NUMBER HAS BEEN ALTERED OR DEFACED.

# Texas Instruments electronic calculator TI-1500

#### ONE YEAR WARRANTY

The TI-1500 electronic calculator from Texas Instruments is warranted to the original purchaser for a period of one year from the original purchase date — under normal use and service against defective materials or workmanship.

Defective parts will be repaired, adjusted and/or replaced at no charge when the calculator is returned prepaid to a Texas Instruments Consumer Service Facility listed below.

The warranty is void if the calculator has been visibly damaged by accident or misuse, if the serial number has been altered or defaced, or if the calculator has been serviced or modified by any person other than a Texas Instruments Consumer Service Facility.

This warranty contains the entire obligation of Texas Instruments Incorporated and no other warranties expressed, implied, or statutory are given.

The warranty is void unless the attached Warranty Registration Card has been properly completed and mailed to Texas Instruments Incorporated within 10 days of purchase.

### Texas Instruments Consumer Services Facilities

Mailing Address:

Canadian Address:

Texas Instruments Service Facility P.O. Box 22283

Dallas, Texas 75222

Texas Instruments Service Facility
41 Shelley Road

Richmond Hill, Ontario, Canada

Consumers in California and Oregon may contact the following Texas Instruments offices for additional assistance or information:

**Texas Instruments Consumer Service** 

78 Town and Country Orange, California 92668 (714) 547-2556 Texas Instruments Consumer Service 10700 Southwest Beaverton Highway Park Plaza West, Suite 111 Beaverton, Oregon 97005 (503) 643-6758

# TEXAS INSTRUMENTS

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Calculator Products Division

# ANNOUNCING A NEW SERVICE FOR TEXAS INSTRUMENTS CALCULATOR OWNERS IN THE FOLLOWING METROPOLITAN AREAS

San Francisco (and Bay Area), California

Los Angeles, California

Portland, Oregon

Dallas, Texas

New York (and New Jersey)

Chicago, Illinois

Boston, Massachusetts

Houston, Texas

Washington, D.C.

(Other offices will be opened at later date)

Facility for repair you may elect to exchange the calculator for a factory rebuilt calculator of the same model by bringing the calculator in person to the nearest Texas Instruments exchange office listed below. Out-of-warranty calculators will be exchanged for a flat fee based on the latest repair rates, which will not exceed 50 percent of the latest suggested retail price of the calculator, and the exchange unit will be in warranty for six months (90 days for TI-1200, TI-1250, and SR-16-II). For additional information, please call the Texas Instruments Consumer Relations office.

#### NOTE: DO NOT MAIL CALCULATORS TO THESE ADDRESSES FOR EXCHANGE

Texas Instruments Supply Company

831 South Douglas El Segundo, California Telephone: (213) 973-2571

Texas Instruments Supply Company 140 Sansome Street San Francisco, California Telephone: (415) 392-5700

Texas Instruments Supply Company 776 Palomar Avenue

Sunnyvale, California Telephone: (408) 732-5555

Texas Instruments Supply Company #1 Huntington Quadrangle, Suite 1C01 Melville L.I., New York

(Exit 49S, L.I. Expressway) Telephone: (516) 293-2660 Texas Instruments Supply Company 2420 E. Oakton Rd.

(Near Elk Grove Village), Illinois Telephone: (312) 437-5660

Texas Instruments Supply Company 504 Totten Pond Road Waltham, Massachusetts (Highway 128 – Exit 48 E)

(Highway 128 – Exit 48 E) Telephone: (617) 890-0510

Texas Instruments Supply Company 6000 Denton Drive

Dallas, Texas

Telephone: (214) 238-5461

Texas Instruments Supply Company 3939 Ann Arbor Drive

Houston, Texas

Telephone: (713) 785-4800

Texas Instruments Supply Company 1500 Wilson Blvd., Suite 616

Arlington, Virginia Telephone: (703) 524-5885

Texas Instruments Consumer Service 1245 Westfield Avenue

Clark, New Jersey
Telephone: (201) 574-9800

Telephone: (201) 574-9800
Texas Instruments Consumer Service\*

10700 SW Beaverton Highway Park Plaza West, Suite 11 Beaverton, Oregon 97005 Telephone: (503) 643-6758

Texas Instruments Consumer Service\* 3186 Air Way, Bldg. K Costa Mesa, California 92626

Costa Mesa, California 92626 Telephone: (714) 540-7311

#### The following terms and conditions apply for in-warranty calculators:

- 1. Exchange is offered for repairable, defective Texas Instruments brand name calculators *ONLY*. Calculators damaged by accident or misuse beyond economical repair will not be exchanged.
- 2. The replacement calculator will also be in warranty for the remainder of the original warranty period or for 90 days, whichever is longer. A \$3.00 service charge will be made at the time of the exchange.
- 3. Exchanges must be made in person and cannot be made by mail.
- 4. Defective accessories which are in warranty will be exchanged without a service charge.

<sup>\*</sup>Because of California and Oregon state laws, calculators mailed to these two offices will be forwarded to the TI Consumer Service Center in Texas for repair and return.

COVERED BY U.S. PATENT NO. 3,819,921 AND OTHER PENDING U.S. AND FOREIGN PATENTS.

#### **IMPORTANT**

This warranty has been drafted to comply with the new Federal law applicable to products manufactured after July 4, 1975. It replaces the warranty included on the back of the Owner's Manual. This warranty in no manner reduces the coverage provided to you under the warranty it replaces.

#### ONE-YEAR LIMITED WARRANTY

This electronic calculator from Texas Instruments is warranted to the original purchaser for a period of one (1) year from the original purchase date - under normal use and service - against defective materials or workmanship. ANY IMPLIED WARRANTIES ARE ALSO LIMITED IN DURATION TO THE ONE-YEAR PERIOD FROM THE ORIGINAL PURCHASE DATE.

This warranty is void if: (1) the calculator has been damaged by accident or unreasonable use, neglect, improper service or other causes not arising out of defects in material or workmanship, (2) the serial number has been altered or defaced.

TEXAS INSTRUMENTS SHALL NOT BE LIABLE FOR LOSS OF USE OF THE CALCULATOR OR OTHER INCIDENTAL OR CONSEQUENTIAL COSTS, EXPENSES OR DAMAGES INCURRED BY THE PURCHASER.

During the above one-year period, defective parts will be repaired, adjusted and/or replaced (at Manufacturer's option) without charge to the purchaser when the calculator is returned, prepaid and insured, with proof-of-purchase date, to a Texas Instruments Consumer Service Facility listed below, UNITS RETURNED WITHOUT PROOF-OF-PURCHASE DATE WILL BE REPAIRED AT THE SERVICE RATES IN EFFECT AT THE TIME OF RETURN.

IMPORTANT: Before returning your calculator for repair, carefully review service and mailing instructions in your Owner's Manual.

#### TEXAS INSTRUMENTS CONSUMER SERVICE FACILITIES

Texas Instruments Service Facility P.O. Box 2500 Lubbock, Texas 79408

Texas Instruments Service Facility 41 Shelley Road Richmond Hill, Ontario, Canada

10700 Southwest Beaverton Highway

Consumers in California and Oregon may contact the following Texas Instruments offices for additional assistance or information:

Texas Instruments Consumer Service Texas Instruments Consumer Service 78 Town and Country Orange, California 92668

Park Plaza West, Suite 111 Beaverton, Oregon 97005 (503) 643-6758

(714) 547-2556